REMARKS

Claims 1-3, 5, 6 and 14 are objected to for minor informalities caused by electronic transmission. Claims 2-7, 11-18, 22, 24, 25, 27-30, 33 and 35 are noted as allowable if rewritten in independent form including all limitations of the base claim and any intervening base claims.

Claims 1, 8-10, 19-21, 23, 26, 31-32 and 34 were rejected under 35 USC 102(b) as anticipated by US 6,127,661 (Fry). Applicant traverses the 102(b) rejections.

The present invention relates to techniques for determining a frequency and a frequency profile of a quartz crystal, comprising deriving or monitoring temperature rates tied to temperature cycles applied to the crystal or temperatures of the crystal. The claimed temperature rates have the plain and ordinary meaning of a temperature rate captured by the <u>time derivative</u> of the temperature parameter itself. This feature of the claimed invention is not disclosed in Fry.

Fry proposes a system for maintaining a crystal at a constant temperature in an ovenized structure by monitoring a <u>temperature gradient with respect to space</u>. The temperature gradient is not with respect to time as in the present invention. Fry proposes using two external temperature sensors, T1 and T2, where T1 is placed between the heater and crystal and T2 is placed between the crystal and ambient. The sensors are used to maintain the crystal at a constant temperature in an ovenized clock.

As pointed out by Fry in column 6, lines 40-50, if the sensor T1 is used entirely for feedback, the system will be under-compensated and the crystal temperature will change in the same direction as ambient. If, on the other hand, sensor T2 is used entirely for feedback the system will be over-compensated and the crystal temperature will move opposite to ambient.

Fry describes a method to determine the optimum ratio of feedback of sensors T1 and T2 to be used so that the crystal is not under or over compensated. Fry describes the calibration of Fb mode, T1, and T2 measurements with respect to each other (col. 7, lines 20-25). Fry then proposes measuring Fb and T2 with feedback for control provided entirely from sensor T1 over the operating ambient temperature (col. 7, lines 25-35). This will allow one to characterize the temperature gradient from the crystal to the location of T2 and ambient over the operating temperature ambient temperature. However, Fry is referring to the temperature gradient with respect to space here, not a temperature gradient with respect to time as disclosed by Applicant.

Fry then proposes similarly characterizing the case when T2 is used entirely for feedback and the combination of this data is used to determine the optimal ratio of T1 and T2 data to be used for feedback. Figure 1 below illustrates Fry's proposed system.

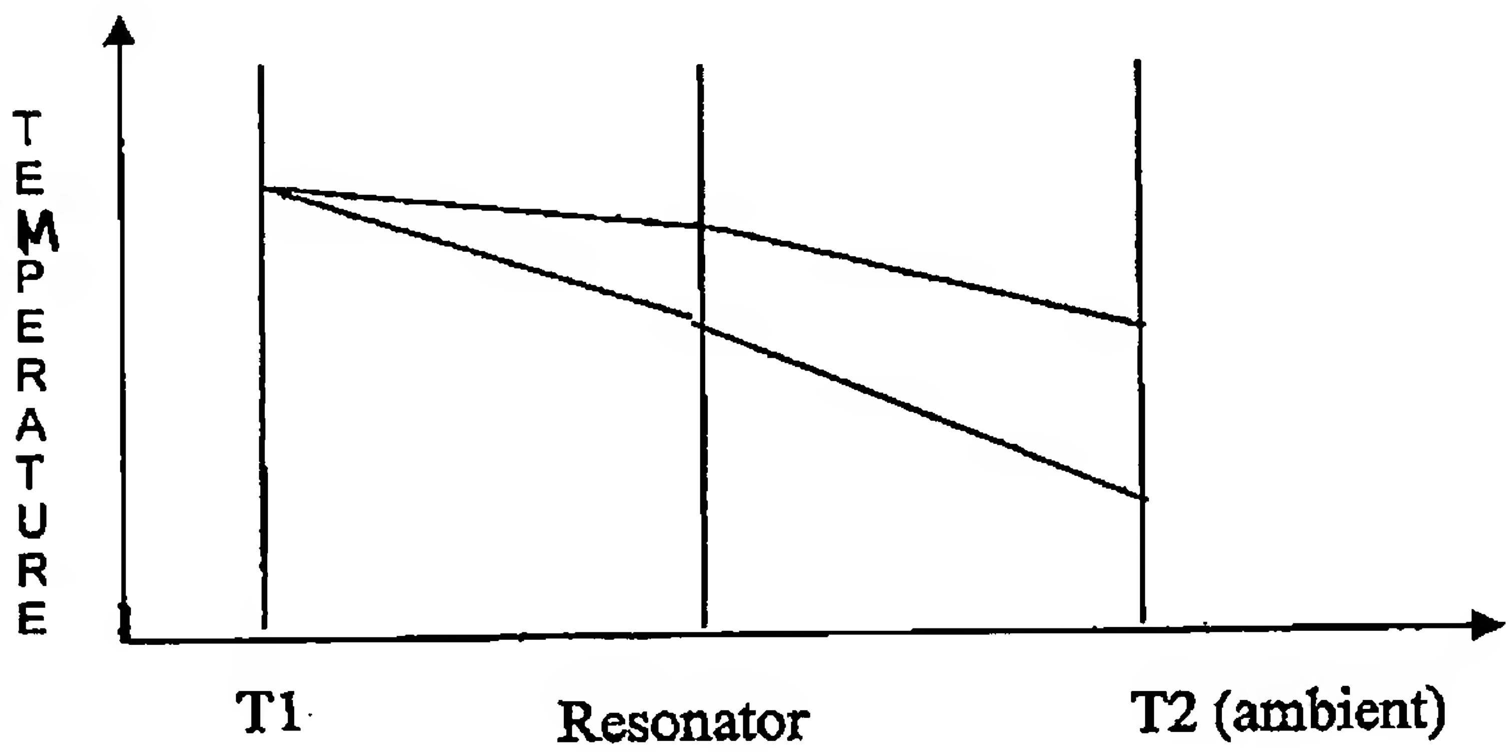

Figure 1: Fry's temperature distribution with respect to space from T1 sensor feedback

Applicant's invention discloses a different concept with different features. The present invention discloses the characterization of a crystal with respect to a temperature parameter such as Fb/Fc (note there is no external temperature sensor) and the temperature rate (time derivative) of this parameter. The claimed crystal frequency characterization with respect to the temperature rate is simply not disclosed or suggested by Fry and the rejections should be withdrawn.

Applicant submits that, as amended, claims 1-35 are in condition for allowance and passage to issuance is respectfully requested. If the Examiner believes that a telephone conference would be advantageous in advancing the issuance of this application, a call to the undersigned at (281) 285-4562 is highly encouraged.

Respectfully submitted,

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